

C1
Fig. 7 is a schematic diagram showing the catheter operating outside the sheath;
and,

Fig. 8 is a schematic diagram showing the catheter operating inside the sheath.

On page 6 kindly rename "cap 19" as "cap 91" by rewriting the first partial paragraph as follows:

C2
As seen in the figure there is a strut 41 which anchors the cap 91 into the flow control body 16. This strut 41 may extend beyond the cap 91 toward the open end of the sheath 24.

On page 6 line 18 kindly ~~delete~~ the reference numeral "19".

In the Drawings kindly enter two new sheets of drawings.

Amended Fig. 1 shows the cap renumbered as 91.

New Fig. 7 and Fig. 8 show the catheter operating inside and outside of the sheath as described in the text as originally filed. The figures are photo reproductions of original figure 5 amended.

In the claims please amend the claims to read as follows:

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C3
11. A catheter system comprising:

a fluid supply catheter having a catheter body said catheter body having a distal tip, said fluid supply catheter having a fluid supply lumen and having at least one distal aperture for injecting fluid into a vessel; said fluid supply lumen receiving fluid at a first supply rate; said distal aperture directing fluid so that a component of flow flows retrograde;

a sheath having a distal tip and having an internal lumen for exhausting fluid and

debris from a vessel at a second rate not determined exclusively by said first supply rate;

said fluid supply catheter located within said sheath and adapted for motion with respect to said sheath;

whereby said catheter body can be moved independently of said sheath distal tip.

12. A catheter system according to claim 11 wherein said internal diameter of said sheath is larger than the maximum diameter of said catheter.

C3 13. A catheter system according to claim 11 wherein said internal diameter of said sheath is substantially equal to the maximum diameter of said catheter.

14. A catheter comprising:

a catheter body having a proximal end and having a distal end;

said catheter body defining an axis;

said distal end having an approximately circular cross section;

a fluid injection lumen in said catheter body terminating near the distal end, for connection to a device for injecting fluid at a first rate;

one or more apertures at the distal end of the catheter body, connecting the fluid supply lumen with the exterior surface of said catheter body;

said aperture defining at least one aperture direction for the emerging flow that lies between approximate ninety degrees and zero degrees, as measured from an axis along the catheter body,

said aperture cooperating with said catheter body to direct a flow of fluid emerging from said aperture along said catheter body such that fluid flows in a retrograde

direction from said distal end toward said proximal end.

15. The catheter of claim 14 wherein said annular aperture is formed by a set of individual holes.

16. The catheter of claim 15 wherein said set of individual holes are substantially equidistant around the periphery of said distal end of said catheter.

17. The catheter of claim 16 wherein said holes are approximately round in cross section.

18. The catheter of claim 16 wherein said holes are approximately rectangular in cross section.

19. The catheter of claim 14 further including :

a control body surface located immediate adjacent said aperture, providing a barrier located proximate said aperture, for limiting fluid entrainment from the location of said control body, near the aperture by the jet emerging from the aperture, whereby said jet is deflected by a pressure difference across said barrier.

20. A catheter comprising:

a catheter body having a proximal end and having a distal end;
a high pressure lumen located in said catheter body;
a series of apertures communicating with said high pressure lumen;
said series of aperture substantially completely encircling said distal end;

a control body formed in said catheter body adjacent said series of apertures blocking fluid entrainment from the area proximal of said apertures by a jet emerging from said apertures.

21. The catheter device of claim 19 wherein a tangent drawn to said control body surface at the location of the aperture is parallel to the aperture direction.

22. The catheter device of claim 19 wherein a tangent drawn to said control body surface at the location of the aperture forms an included angle with the aperture direction that is greater than zero degrees and less than ninety degrees.

23. A extraction catheter system for removing embolic material comprising:

- a sheath having a sheath lumen adapted to receive and guide a catheter;
- said catheter having a catheter body having a distal end and a proximal end and having an interior and an exterior surface;
- a fluid supply lumen in said catheter body, for connection to a device for injecting fluid at a first rate;
- a fluid port connecting said fluid supply lumen with the exterior surface of said catheter body;
- said fluid port and said body cooperating to attach fluid ejected from said fluid port to said body;
- whereby said fluid ejected by said port mixes with embolic material and follows the catheter body in a retrograde direction, transporting the fluid and embolic material into said sheath lumen where it is collected at a second rate not directly metered by said first injection rate.